

What is claimed is:

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5 1. A nitride based semiconductor light emitting device comprising:
a light emitting layer composed of a Group III nitride
based semiconductor and including an active layer; and
a cladding layer of a first conduction type composed
of a Group III nitride based semiconductor, formed on said
light emitting layer, having a larger band gap than said
10 active layer, and having a lower refractive index than the
active layer,
the thickness of said cladding layer of a first
conduction type being less than $0.3 \mu\text{m}$.

15 2. The nitride based semiconductor light emitting
device according to claim 1, wherein
said cladding layer of a first conduction type has an
aluminum composition ratio of not more than 0.05.

20 3. The nitride based semiconductor light emitting
device according to claim 1, wherein
said light emitting layer further includes an optical
guide layer of a first conduction type formed on said active
layer,
25 said optical guide layer of a first conduction type has

DETAILED DESCRIPTION
a smaller band gap and a higher refractive index than said cladding layer of a first conduction type and has a larger band gap and a lower refractive index than said active layer, and

5 said cladding layer of a first conduction type is formed on said optical guide layer of a first conduction type.

4. The nitride based semiconductor light emitting device according to claim 3, wherein

10 said light emitting layer further includes a carrier leakage preventing layer of a first conduction type formed on said active layer and having a larger band gap than said optical guide layer of a first conduction type, and

15 said optical guide layer of a first conduction type is formed on said carrier leakage preventing layer of a first conduction type.

5. The nitride based semiconductor light emitting device according to claim 1, wherein

20 said cladding layer of a first conduction type has a ridged portion, and

the thickness of said ridged portion is less than 0.3 μm .

25 6. The nitride based semiconductor light emitting

device according to claim 1, wherein

 said Group III nitride based semiconductor contains at least one of boron, gallium, aluminum, indium, and thallium.

5 7. The nitride based semiconductor light emitting device according to claim 1, wherein

 said cladding layer of a first conduction type contains gallium and aluminum.

10 8. The nitride based semiconductor light emitting device according to claim 1, wherein

 said active layer contains gallium and indium.

9. The nitride based semiconductor light emitting
15 device according to claim 1, wherein

 said active layer has a multi-quantum well structure alternately including one or more well layers and a plurality of quantum barrier layers, and

20 the band gap of the active layer is the band gap of said one or more well layers.

10. The nitride based semiconductor light emitting
device according to claim 1, wherein
 the electric field distribution of laser light in the
25 active layer is changed in accordance with a sine function

or a cosine function, and

the electric field distribution of laser light in the cladding layer of a first conduction type is changed in accordance with an exponential function.

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11. The nitride based semiconductor light emitting device according to claim 1, further comprising a current blocking layer formed on or in said cladding layer of a first conduction type and having a striped opening.

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12. The nitride based semiconductor light emitting device according to claim 1, wherein said first conduction type is a p type.

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13. The nitride based semiconductor light emitting device according to claim 1, further comprising a cladding layer of a second conduction type composed of a Group III nitride based semiconductor, said light emitting layer is formed on said cladding layer of a second conduction type.

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14. A nitride based semiconductor light emitting device

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comprising

a light emitting layer composed of a Group III nitride based semiconductor and including an active layer and an

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~~optical guide layer of a first conduction type formed on the active layer; and an electrode which is brought into ohmic contact with said optical guide layer of a first conduction type.~~

5 ~~the optical guide layer of a first conduction type having a larger band gap than the active layer and having a lower refractive index than the active layer.~~

15. The nitride based semiconductor light emitting
10 device according to claim 14, wherein

~~said light emitting layer further includes a carrier leakage preventing layer of a first conduction type formed on said active layer and having a larger band gap than said optical guide layer of a first conduction type, and~~

15 ~~said optical guide layer of a first conduction type is formed on said carrier leakage preventing layer of a first conduction type.~~

16. The nitride based semiconductor light emitting
20 device according to claim 14, wherein

~~said optical guide layer of a first conduction type has a ridged portion, and~~

~~said electrode is brought into ohmic contact with an upper surface of said ridged portion.~~

17. The nitride based semiconductor light emitting device according to claim 14, wherein

 said Group III nitride based semiconductor contains at least one of boron, gallium, aluminum, indium, and thallium.

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18. The nitride based semiconductor light emitting device according to claim 14, wherein

 said active layer contains gallium and indium, and

10 said optical guide layer of a first conduction type contains gallium.

19. The nitride based semiconductor light emitting device according to claim 14, wherein

15 said active layer has a multi-quantum well structure alternately including one or more well layers and a plurality of quantum barrier layers, and

 the band gap of the active layer is the band gap of said one or more well layers.

20 20. The nitride based semiconductor light emitting device according to claim 14, wherein

 the electric field distributions of laser light in the active layer and the optical guide layer of a first conduction type are changed in accordance with a sine function or a 25 cosine function.

21. The nitride based semiconductor light emitting device according to claim 15, wherein

said active layer contains gallium and indium,

5 said optical guide layer of a first conduction type contains gallium, and

said carrier leakage preventing layer of a first conduction type contains gallium and aluminum.

10 22. The nitride based semiconductor light emitting device according to claim 14, further comprising

a current blocking layer formed on said light emitting layer and having a striped opening.

15 23. The nitride based semiconductor light emitting device according to claim 14, wherein

said first conduction type is a p type.

24. The nitride based semiconductor light emitting 20 device according to claim 14, further comprising

a cladding layer of a second conduction type composed of a Group III nitride based semiconductor,

said light emitting layer being formed on said cladding layer of a second conduction type.

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